

ORIGINAL ARTICLE

Oral Epidemiology

Validation of Persian rapid estimate of adult literacy in dentistry

Amir H. Pakpour^{1,2}, Douglas M. Lawson³, Santosh K. Tadakamadla⁴ & Bengt Fridlund⁵

1 Social Determinants of Health Research Center, Qazvin University of Medical Sciences, Qazvin, Iran

2 Department of Public Health, Qazvin University of Medical Sciences, Qazvin, Iran

3 Department of Chiropractic, D'Youville College, Buffalo, NY, USA

4 Population & Social Health Research Program, Griffith Health Institute, School of Dentistry and Oral Health, Gold Coast, QLD, Australia

5 School of Health Sciences, Jönköping University, Jönköping, Sweden

Keywords

oral health literacy, psychometric, rapid estimate of adult literacy in dentistry-99, rasch model, validity.

Correspondence

Dr Amir H. Pakpour, Social Determinants of Health Research Center, Qazvin University of Medical Sciences, Shahid Bahonar BLV, Qazvin 3419759811, Iran

Tel: +98-281-3338127

Fax: +98-281-3345862

Email: Pakpour_Amir@yahoo.com

Received 10 February 2014; accepted 26 August 2014.

doi: 10.1111/jicd.12135

Abstract

Aim: The aim of the present study was to establish the psychometric properties of the Rapid Estimate of adult Literacy in Dentistry-99 (REALD-99) in the Persian language for use in an Iranian population (IREALD-99).

Methods: A total of 421 participants with a mean age of 28 years (59% male) were included in the study. Participants included those who were 18 years or older and those residing in Quazvin (a city close to Tehran), Iran. A forward–backward translation process was used for the IREALD-99. The Test of Functional Health Literacy in Dentistry (TOFHLiD) was also administered. The validity of the IREALD-99 was investigated by comparing the IREALD-99 across the categories of education and income levels. To further investigate, the correlation of IREALD-99 with TOFHLiD was computed. A principal component analysis (PCA) was performed on the data to assess unidimensionality and strong first factor. The Rasch mathematical model was used to evaluate the contribution of each item to the overall measure, and whether the data were invariant to differences in sex. Reliability was estimated with Cronbach's α and test–retest correlation.

Results: Cronbach's alpha for the IREALD-99 was 0.98, indicating strong internal consistency. The test–retest correlation was 0.97. IREALD-99 scores differed by education levels. IREALD-99 scores were positively related to TOFHLiD scores ($rh = 0.72$, $P = 0.01$). In addition, IREALD-99 showed positive correlation with self-rated oral health status ($rh = 0.31$, $P = 0.01$) as evidence of convergent validity. The PCA indicated a strong first component, five times the strength of the second component and nine times the third. The empirical data were a close fit with the Rasch mathematical model. There was not a significant difference in scores with respect to income level ($P = 0.09$), and only the very lowest income level was significantly different ($P = 0.01$).

Conclusions: The IREALD-99 exhibited excellent reliability on repeated administrations, as well as internal consistency. The IREALD-99 can be used for the basic screening of oral health literacy among the Iranian population.